

IN THE CLAIMS:

1. (currently amended) A catalytic reforming process having a first catalytic reforming zone in a lead position followed by a second catalytic reforming zone in a lag position to produce a reforming conversion resulting in a net hydrogen stream having a reduced concentration of carbon monoxide wherein the process comprises:

(a) operating the first catalytic reforming zone at a first inlet temperature having been increased to restore an original predetermined reforming conversion or product octane; and

(b) operating the second catalytic reforming zone at a second inlet temperature having been reduced and that is less than the first inlet temperature and achieved in a heater that is operated below its maximum heating capacity to obtain a net hydrogen product stream having a reduced concentration of carbon monoxide.

2. (currently amended) The process of claim 1 wherein the catalytic reforming process comprises three catalytic reforming zones in series.

3. (currently amended) The process of claim 1 wherein the catalytic reforming process comprises four catalytic reforming zones in series.

4. (currently amended) The process of claim 1 wherein the catalytic reforming process is operated at conditions including a pressure from about 270 kPa (25 psig) to about 1480 kPa (200 psig), a temperature from about 450°C (842°F) to about 550°C (1022°F), a hydrogen to hydrocarbon mole ratio from about 1 to about 5 and a liquid hourly space velocity from about 0.5 to about 4 hr⁻¹.

5. (original) The process of claim 1 wherein the second inlet temperature is operated at a temperature of at least 5°C (9°F) less than the first inlet temperature.

6. (original) The process of claim 1 wherein the second inlet temperature is operated at a temperature in the range from about 5°C (9°F) to about 20°C (36°F) less than the first inlet temperature.

7. (currently amended) A catalytic reforming process having a plurality of catalytic reforming zones in series having a first catalytic reforming zone in a lead position followed by a second catalytic reforming zone in a lag position to produce a reforming conversion resulting in a net hydrogen product stream having a reduced concentration of carbon monoxide wherein the process comprises:

(a) operating the first catalytic reforming zone at a first inlet temperature having been increased to restore an original predetermined reforming conversion or product octane and to thereby reduce the concentration of carbon monoxide in the net hydrogen product stream; and

(b) operating the second catalytic reforming zone at a second inlet temperature having been reduced and that is less than the first inlet temperature and achieved in a heater that is operated below its maximum heating capacity to obtain a net hydrogen product stream having a reduced concentration of carbon monoxide.

8. (original) The process of claim 7 wherein a net hydrogen product stream contains from about 0.1 to about 20 vppm carbon monoxide.

9. (currently amended) The process of claim 7 wherein the catalytic reforming process is operated at conditions including a pressure from about 270 kPa (25 psig) to about 1480 kPa (200 psig), a temperature from about 450°C (842°F) to about 550°C (1022°F), a hydrogen to hydrocarbon mole ratio from about 1 to about 5 and a liquid hourly space velocity from about 0.5 to about 4 hr⁻¹.

10. (currently amended) The process of claim 7 wherein the last catalytic reforming zone inlet temperature is operated at a temperature in the range from about 5°C (9°F) to about 20°C (36°F) less than the remaining upstream catalytic reforming zone inlet temperature[[s]].

11. (currently amended) A catalytic reforming process having four catalytic reforming zones in series to produce a reforming conversion resulting in a net hydrogen product stream having a reduced concentration of carbon monoxide wherein the process comprises:

- (a) operating the first three catalytic reforming zones at similar operating inlet temperatures having been increased to restore an original predetermined reforming conversion or product octane and to thereby reduce the concentration of carbon monoxide in the net hydrogen product stream; and
- (b) operating the fourth catalytic reforming zone located in the lag position at an inlet temperature having been reduced and that is 5°C (9°F) to about 20°C (36°F) less than the three lead catalytic reforming zones and achieved in a heater that is operated below its maximum heating capacity to obtain the net hydrogen product stream having a reduced concentration of carbon monoxide.
12. (original) The process of claim 11 wherein the net hydrogen product stream has a reduced concentration of carbon monoxide from about 0.1 to about 20 vppm carbon monoxide.
13. (currently amended) The process of claim 11 wherein the catalytic reforming process is operated at conditions including a pressure from about 270 kPa (25 psig) to about 1480 kPa (200 psig), a temperature from about 450°C (842°F) to about 550°C (1022°F), a hydrogen to hydrocarbon mole ratio from about 1 to about 5 and a liquid hourly space velocity from about 0.5 to about 4 hr⁻¹.